IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Jennifer STONE-SUNDBERG, et al.

Title: SPINEL BOULES, WAFERS, AND METHODS FOR FABRICATING SAME

Application No.: NEW APPLICATION Filed: HEREWITH

Atty. Docket No.: 1035-BI4281

MS PATENT APPLICATION
COMMISSIONER FOR PATENTS
PO Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT TRANSMITTAL

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, the undersigned brings the patents, publications, applications or other information identified in the attached:

☒ Form(s) PTO/SB/08A and/or PTO/SB/08B
☐ Other: n/a

to the Examiner's attention in the above-identified application. These references were cited in parent Application No. , filed . Accordingly, in accordance with C.F.R. §1.98(d), copies of the references are not being supplied herewith. Citation of such information shall not be construed as:

1. an admission that the information necessarily is, or corresponds to, prior art with respect to the instant invention;
2. a representation that a search has been made, other than as described below; or
3. an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

For each item of information listed that is not in the English language, the undersigned has provided a concise explanation of the relevance, such as through (i) an English language abstract, (ii) an English language equivalent application, (iii) reference to discussion in the application, or (iv) if cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action that indicates the degree of relevance found by the foreign office.

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EV 335894775 US

STATEMENT UNDER 37 C.F.R. § 1.704(d)

If the above-identified application is an original application filed on or after May 29, 2000:

☐ each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement.

FEES DUE

This Information Disclosure Statement is being filed:

☒ within three months of the filing date of a national application or within three months of entry of the national stage as set forth in § 1.491 in an international application. Therefore, no fee is required.

☐ before the mailing date of a first Office action on the merits or before the mailing date of a first Office action after the filing of a request for continued examination under § 1.114. Therefore, no fee is believed required.

☐ after the period specified in § 1.97(c), but on or before payment of the issue fee. Accordingly, the fee set forth in § 1.17(p) is required and provided as shown on the attached Fee Transmittal.

If however, this Information Disclosure Statement is determined by the USPTO to be filed after the period specified in § 1.97(b), the undersigned hereby authorizes the Commissioner to charge the fee set forth in § 1.17(p) as shown on the attached Fee Transmittal.

Date 9/23/03

Respectfully submitted,

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Substitute for form 1449/PTO

Complete if Known
Application Number NEW APPLICATION
Filing Date HEREWITH
First Named Inventor Jennifer Ston -Sundberg
Attorney Docket Number 1035-BI4281

Sheet 1 of 3
(use as many sheets as necessary)

U.S. PATENT DOCUMENTS

Examiner Initials *	Cite No.1	U.S. Patent Document Number	Kind Code 2 (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	AA	3,655,439		SEITER	04/11/1972	
	AB	3,658,586		WANG	04/25/1972	
	AC	3,796,597		V.R. PORTER, et al.	03/12/1974	
	AD	4,177,321		NISHIZAWA	12/04/1979	
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	AL	EP	0 148 656	A1	AUZEL, et al.	11/16/1984		☐
	AM							☐

PUBLICATIONS

Examiner Initials *	Cite No.1	Title of Publication	Date of Publication of Cited Document MM-DD-YYYY
	AV	YUMASHEV K.V.,et al., "Co^{2+}-doped spinels saturable absorber Q-switches for 1.3-1.6 μm solid state lasers", OSA TRENDS IN OPTCS AND PHOTONICS. ADVANCED SOLID STATE LASERS., Vol. 34, pp. 236-239, 2000. **XP008017966**	
	AW	YUMASHEV, K.V., et al., "Passive Q-switching of 1.34-m neodymium laser using Co^{2+}:$LiGa_5O_8$ and Co^{2+}:$MgAl_2O_4$", CONFERENCE DIGEST, 2000, 1 page. **XP002242959**	
	AX	OKTYABRSKY, S., et al., "Crystal structure and defects in nitrogen-deficient GaN", MRS Internet J. Nitride Semicond. Res, G6.43, pp. 1-6, 1999.	
	AY	KLEBER, W., et al., "Zur epitaxie von galliumnitrid auf nichtstochiometrischem spinell im system GaCl/NH_3/He", CRYSTAL RESEARCH AND TECHNOLOGY, Vol. 10, No. 7, pp. 747-758, 1975. (English Abstract)	
	AZ	SEIFERT, A., "Nachweis von stapelfehlern in GaN-epitaxieschichten mittels elektronenbeugung", CRYSTAL RESEARCH AND TECHNOLOGY, Vol. 10, No. 7, pp. 741-746, 1975. (English Abstract)	

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Unique citation designation number. 2 See attached Kinds of U.S. Patent Documents. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). 4 For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5 Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. 6 Applicant is to place a check mark here if English language Translation is attached.

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	AAA	KULESHOV, N.V., et al. "Co-doped spinels: promising materials for solid state lasers", LONGER WAVELENGTH LASERS AND APPLICATIONS, Vol. 2138, pp. 175-182, 1994. **XP008017848**	
	AAB	KULESHOV, N.V., et al., "Absorption and luminescence of tetrahedral Co^{2+} ion in $MgAl_2O_4$, Vol. 55, no. 5-6, pp. 265-269, 1993. **XP008017849**	
	AAC	NIKISHIN, S.A., et al., "Gas source molecular beam epitaxy of GaN with hydrazine on spinel substrates", APPLIED PHYSICS LETTERS, Vol. 72, No. 19, pp. 2361-2363, 1998. **XP000755963**	
	AAD	HAISMA, et al., "Lattice constant adaptable crystallographics", JOURNAL OF CRYSTAL GROWTH", Vol. 102, pp. 979-993, 1990. **XP002250056**	
	AAE	TAMURA, K., et al., "Epitaxial growth of ZnO film on lattice-matched $ScAlMgO_4$ (0001) substrates", JOURNAL OF CRYSTAL GROWTH, Vol. 214-215, pp. 59-62, 2000. **XP004200964**	
	AAF	WYON, et al., "Czochralshi growth and optical properties of magnesium-aluminum spinel doped with nickel", JOURNAL OF CRYSTAL GROWTH, Vol. 79, pp. 710-713, 1986. **XP002250057**	
	AAG	TSUCHIYA, T., et al. " Epitaxial growth of InN films on $MgAl_2O_4$ (1 1 1) substrates", JOURNAL OF CRYSTAL GROWTH, Vol. 220, pp. 185-190, 2000.	
	AAH	KURAMATA, Akito, et al., "High-quality GaN epitaxial layer grown by metalorganic vapor phase epitazy on (111) $MgAl_2O_4$ substrate", APPL. PHYS. LETT., Vol. 67, No. 17, pp. 2521-2523, 1995.	
	AAI	MITCHELL, T., "Dislocations and Mechanical Properties of MgO- $MgAl_2O_3$ spinel single crystals", J. AM. CERAM. SOC., Vol. 82, No. 12, pp. 3305-3316, 1999.	
	AAJ	HELLMAN, E., "Exotic and Mundane substrates for gallium nitride heteroepitaxy", BELL LABORATORIES, THC2, Murray Hill, NJ.	
	AAK	KRUGER, M.B., et al., "Equation of state of $MgAl_2O_4$ spinel to 65 GPa", THE AMERICAN PHYSICAL SOCIETY, Vol. 56, No. 1, pp. 1-4, 1997.	
	AAL	KURAMATA, A., et al., "Properties of GaN epitaxial layer grown on (111) $MgAl_2O_4$ substrate", SOLID-STATE ELECTRONICS, Vol. 41, No. 2, pp. 251-254, 1997.	
	AAM	GRITSYNA, V., et al., "Structure and Electronic states of defects in spinel of different compositions MgO • n $MgAl_2O_3$:Me", J. AM. CERAM. SOC. Vol. 82. No. 1, pp. 3365-3373, 1999.	

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	BA	6,533,874	B1	VAUDO, et al.	03/18/2003	
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	BD					
	BE					
	BF					
	BG					
	BH					
	BI					
	BJ					
	BK					

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	BL							☐
	BM							☐

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Examiner Initials *	Cite No.1	Title of Publication	Date of Publication of Cited Document MM-DD-YYYY
	BW	OHSATO, H., et al., "Epitaxial orientation and a growth model of (0 0 • 1) GaN thin film on (1 1 1) spinel substrate", JOURNAL OF CRYSTAL GROWTH, Vol. 189/190, pp. 202-207, 1998.	
	BX	YANG, H. –F., et al., "Microstructure evolution of GaN buffer layer on $MgAl_2O_4$ substrate", JOURNAL OF CRYSTAL GROWTH, Vol. 193, pp. 478-483, 1998.	
	BY	DUAN, S., et al., "MOVPE growth of GaN and LEDon (1 1 1) $MgAl_2O_4$", JOURNAL OF CRYSTAL GROWTH, Vol. 189/190, pp. 197-201, 1998.	
	BZ	SHELDON, R., et al., "Cation Disorder and Vacancy Distribution in Nonstoichiometric Magnesium Aluminate Spinel, MgO • Al_2O_3", J. AM. CERAM. SOC., Vol. 82, No. 12, pp. 3293-3298, 1999.	

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